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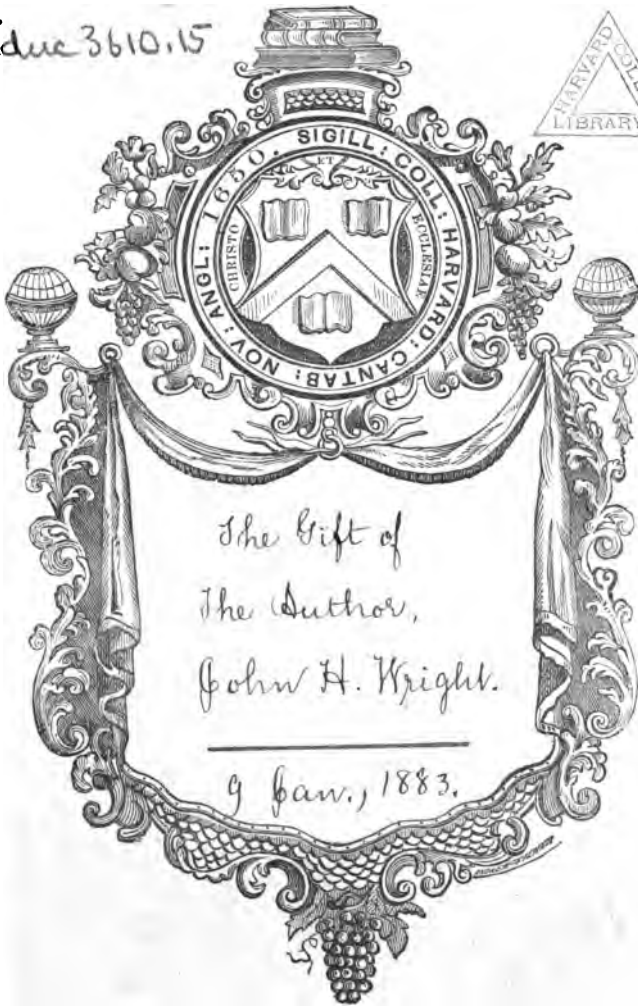
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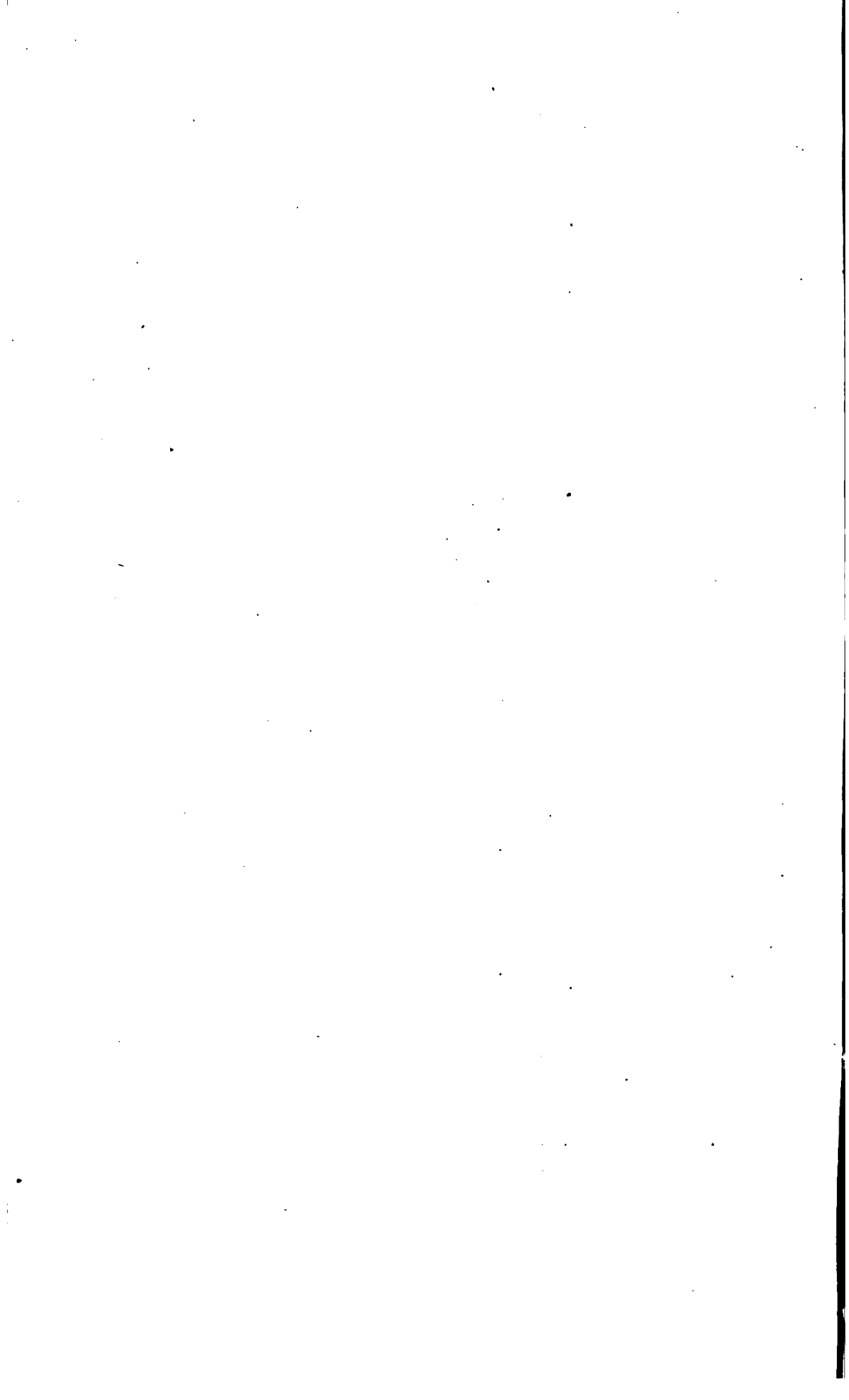
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AN ADDRESS

ON

THE PLACE OF ORIGINAL RESEARCH

IN

COLLEGE EDUCATION.

BY

JOHN HENRY WRIGHT,

ASSOCIATE PROFESSOR OF GREEK IN DARTMOUTH COLLEGE.

READ BEFORE THE

NATIONAL EDUCATIONAL ASSOCIATION,

Department of Higher Instruction,

JULY 14, 1882,

AT SARATOGA, N. Y.

[*Extract from the Transactions of the National Educational Associations, 1882.*]

BOSTON:

ALFRED MUDGE & SON, PRINTERS,

34 SCHOOL STREET

1883.

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THE PLACE OF ORIGINAL RESEARCH IN COLLEGE
EDUCATION.

BY JOHN HENRY WRIGHT,

Associate Professor of Greek in Dartmouth College.

AT the present time, in the discussion of the problems of college education in this country, attention is directed mainly towards methods, and not as heretofore chiefly towards the subject-matter of higher instruction. The war that was strenuously waged, a decade and more ago, against the claim of classical and literary studies to occupy a foremost place in a liberal education, has somewhat abated in violence. The wise words upon the matter, uttered at St. Andrew's by John Stuart Mill,¹ were not without their effect upon a generation that delighted to acknowledge him as teacher and guide; not to speak of influence of other thinkers, nor of that reaction which, in the world of mind as well as in that of matter, is sure to ensue when nature's true mean has been overleaped. The prayer of Goethe, "the most modern of moderns," that the study of Greek and Roman literature might ever remain the basis of liberal education,² is likely long to continue to be the wish of all who have a clear understanding of what a liberal education is. The Greeks and Romans are, more or less directly, our intellectual ancestry; and in these days when much is made of the doctrine of heredity, it is everywhere recognized, and most of all, perhaps, by those who possess the genuine scientific spirit, that a knowledge of one's intellectual heredity is of the utmost moment to him who would become master of himself and of his age, in the commonwealth of letters and science,—a commonwealth that knows the limits neither of time nor of place in its citizenship.

"Antiquity deserveth that reverence," says Lord Bacon,³ "that men should make a stand thereupon and discover what is the best way; but when the discovery is well taken, then to make progression."

When the discovery is well taken, then to make progression; it is with this phase of the subject that scholars are nowadays concerned: not with the question whether, after all, antiquity deserveth the reverence that it should be the basis of education, but as to how, granted this starting-ground, progression shall be best made. The evidences of this fact are to be found in the character of the principal changes that have been introduced, within the last few years, into our higher collegiate education. I will speak of three

such changes. In many of our leading colleges and universities the belief is gaining ground, and to a considerable extent has been put into practice, that, after the student has laid certain foundations essential to all liberal culture, his intellectual growth is more securely achieved by leaving, in part at least, to his own choice and tastes the character of the superstructure, than by compelling him undeviatingly to pattern after one model. Further, in regard to the chief object in view in the study of the so-called classical languages, and as to the best way of reaching this object, there has come about a change of feeling among teachers. The texts of classical authors are now read, not as convenient illustrations of grammar, mythology, prosody, and the like, but as an end in themselves; and grammar, mythology, prosody, archæology, when studied in connection with the reading of authors, are treated as means entirely subordinate to this end. By the wide-spread introduction into, and the emphasis in, our courses of study of what is known as "reading at sight," remarkable results have been reached. It is confidently believed that the younger generation of classically educated men are learning to read ancient authors as they read authors of their own or of a foreign tongue, and that the day has gone by when these languages can be spoken of as dead unto the men who have honestly learned them in our best colleges, except by a most superficial use of words. Again, the subject-matter of classical philology is approached and treated in a different way from that current a generation ago. Under the influence of the scientific spirit which is entering upon all domains of knowledge, *res non verba quæso*, in literature as well as in science. As the *Saturday Review* tells us, "Cambridge, England, the head and front of old verbal scholarship, is transforming her classical curriculum. Not through mere linguistic attainments, but through scientific philology, scientific archæology, scientific study of ancient history and philosophy, will henceforth be the road to her brightest honors." And what is here said of the English university is more and more getting to be true of the leading centres of our own American academic life.

If such, then, is the general tendency of interest, — towards the methods rather than the materials of the liberal education, — I cannot but believe that, in inviting your attention to the consideration and discussion of *The Place of Original Research in College Education*, a question that concerns itself almost entirely with method, I am doing the cause of higher instruction a timely, and perhaps a not unimportant, service.

In treating this subject, the main course of thought will be upon

the following lines : I shall attempt, in the first place, to make clear what is to be understood by original research in college education ; then, to describe with some fulness of detail how and with what extraordinary results work of this character is provided for, encouraged, and carried on in another land and under an educational system quite different from our own ; in the third place, to make a few suggestions as to how, under our peculiar conditions, it might be called into being and activity in our colleges ; and finally, to press with urgency the principal reasons that should lead us to a reform in this direction. Each one of these lines of thought will sustain and illustrate the others, and it will not be necessary to keep them carefully distinct in the sequence of the discussion. There can be no better way of suggesting how original research may be arranged for than by presenting concrete instances of organizations and institutions, in other lands or in our own, where such work is done, and no better argument for it than the good results that have actually been found to flow from such institutions.

The general sense of the expression "original research" requires no definition ; but used as it is here, in connection with a college education, and as the most convenient approximate designation of the thing I have in mind, it needs limitation and explanation. Original research, as the term will here be used, is, in the first place, work pursued in subjects embraced in college instruction ; and, inasmuch as the major part of the college course is made up of linguistic, literary, historical, and philosophical studies, the topics of inquiry will ordinarily be drawn from these fields, although physical science — with which we are apt, perhaps almost exclusively, to associate the idea of original research — will supply its share of subjects. The essential character of such work is that it both consists in, and is based upon, direct personal observation and actual examination, together with inductions suggested by the facts investigated and discovered, — inductions and inferences independently made by the inquirer, made originally in that they are arrived at without outside help. Sometimes the record will be memoranda of observations only. Such work in some cases, however, may be original inferences from data in part furnished by others, data personally tested and verified, the independent, fresh treatment of an old subject. In every case it is work that essentially calls into play the creative mental activities. In its prosecution the mind necessarily abandons the passive, the receptive attitude that it is obliged to assume throughout the larger part of its training, particularly in the earlier stages.

In history, it will be the examination and delineation of an event

or epoch or institution from all the earliest accessible records thereof. In biography, it will be the re-creation of a personage from all the independent data left concerning him. In language, it will usually consist in the statement and classification of facts of linguistic usage based upon the study of authentic texts. In literature, both ancient and modern, it will rest upon and be conditioned by broad, comprehensive, and accurate reading of original documents, and will consist in analysis, inference, combination of conclusions, independently performed and recorded in carefully written theses, commentaries, or monographs. In physical science and natural history, it will be work done in the laboratory or on the field, — work guided, it may be, by the experience of others, but prosecuted without foreign assistance. And in the recorded results of all these studies the matter of chief consequence will be, not their rhetorical finish or flourish, but the earnest, independent work, the exact observation, and the hard thinking that they represent.

In most cases the results reached cannot be absolutely original, but they are sure to be relatively original if honestly attained; while the educational effect upon the student of the intellectual operations passed through is quite as great as if the outcome of his work were absolutely new truth. It is the attitude and activity of the mind that is of main moment.

Such are some of the leading characteristics of what I have called original research in a college course of study. Before passing on to suggest how it may be provided for in our own country and before urging its high importance, let me bring to your attention, from the educational system of Germany, a nexus of institutions by which work of this character is called into being, recognized, and fostered. These institutions are the so-called *Seminarien* (seminaries for special departments of knowledge), and kindred organizations, to be found connected with all representative German universities. Historically these seminaries had their origin, early in the last century, in the want felt of well-trained teachers for the gymnasia and higher schools. At the present time, however, while they satisfy this want, they do it only indirectly: they are now essentially and principally nurseries of science and philology. The seminaries were instituted that theological students, who expected to teach on the way to their profession, might receive special pedagogical training in the subjects in which they would be called upon to give instruction in the schools. As the subject-matter of liberal instruction was mainly the languages and literatures of Greece and Rome, the seminaries naturally became philological in character. The first seminary that

actually assumed the designation of philological was that founded at Göttingen in 1733, by Gesner the famous Latinist.⁴ This seminary has been in many respects the model for all later ones. But toward the close of the century, a little less than a hundred years ago, these institutions underwent a remarkable development. This was due to the labors and influence of Friedrich August Wolf, a genius who marks epochs in general literary criticism, and in classical philology as well as in the higher education.⁵ Wolf gave these seminaries a much higher character than that of mere normal institutes. In his address at the opening of his seminary at Halle (1787), he said that the object in view was not only to fit competent teachers for important posts, but also to revive a dying love for classical studies. He succeeded in this twofold object. He succeeded not alone in fitting competent teachers, but in bringing into being a new profession of higher school teachers, a profession totally distinct and separate from that of theology. This profession now exists in Germany alongside of the law, medicine, and the church. For it years of severest study and training are demanded, and to its existence is largely due Germany's leadership in the domain of philology,—a leadership and mastership that often makes the performances of scholars in other lands appear as mere child's play. Wolf also reformed and revived classical studies, and his influence in this direction was felt in other departments of learning and research as well. Men that had learned in Wolf's *Seminarium Philologicum* the master's scientific method in the investigation of classical subjects—a method to which in its more perfected stage I shall have occasion to advert—used it with signal effect in other fields; the study of history and of general literature, of the documents of theology and of law, became revolutionized. Scholarship ceased to be dull and pedantic; it became the business-like activity of serious men. Wolf breathed into his pupils his own energetic spirit. And all these changes were brought about, far more through the direct and personal influence of the master, exerted and felt in the seminary, than by his published works, or even by his university lectures.

There are at the present time, connected with the better universities in Northern Germany, seminaries for nearly every great department of knowledge. These institutions are under the immediate direction of the leading university professors, and are under the patronage of the state, which pays a small salary to the director and to the student members. The latter receive about forty dollars annually. The active membership of the seminary is usually limited to a very small number, from ten to fifteen, and admission is obtained

only on meeting severe requisitions. The sessions of the seminary, which usually take place weekly and last for two or three hours at a time, are open to the public. Frequently a seminary is provided with a library and a room where the members meet and work together in preparation for the public exercises.⁶

The leading seminaries at a university are ordinarily the philological and the historical; next come the seminaries for law, for practical theology, for classical archæology, for the German language and literature, for English, for the Romance languages, for mathematics, for natural science, etc., and in some universities one for the science of pedagogy.

The object of these institutions is best set forth in their statutes,⁷ from which I translate. The Historical Seminary at Breslau⁸ has for its "aim to introduce its members into scientific methods of historical investigation and exposition." It has three sections, independent of each other, for ancient, mediæval, and modern history, respectively. The Historical Seminary at Bonn⁹ professes a similar object, but in its four sections pays great attention to the sciences auxiliary to history proper, to chronology, to political geography, to statistics, and the like. The opening paragraphs of the statutes of the seminary for law at Berlin read as follows:¹⁰ "The Juristic Seminary aims as its chief object to give to students of the law an introduction to personal scientific work on the subject of law, by means of original exercises in the exegesis, history, and principles of law, and thus to prepare them for independent scientific research. This seminary is divided into three sections, for Roman, for German, and for canon law, respectively." The aim of the Mathematical Seminary at Berlin is thus given: "The seminary for the training of students in scientific mathematics is a public institution in connection with the university, which aims to give to students, who have already obtained a certain amount of mathematical knowledge, an introduction to scientific mathematical analysis and computation, and, by making them acquainted with all the helps both of theory and in practice, to train them to skill and accuracy."

The regulations of the Philological Seminary at Königsberg present us the type of this class of institutions.¹¹ "This seminary has a twofold aim: first, as regards students who devote themselves exclusively or principally to the study of classical antiquity. It endeavors, by a variety of practical exercises which shall introduce one into the very heart of philological science, and shall train one to methods of research, and by literary helps of all kinds, to provide opportunities for self-culture and education, in order that classical

studies, by men thus trained, may be maintained, perpetuated, and enlarged. In the second place, in reference to students who, while interested in classical philology, do not make a specialty of it, the object of the seminary is to provide an opportunity for obtaining a more vivifying discipline in such studies than is attainable through mere attendance at lectures. . . . The essential characteristic of all papers submitted to the seminary must be that they present results, even if incomplete, arrived at by personal investigation and independent research, not thoughts long familiar to the writer and hastily heaped together. Long and careful preparation is insisted upon; the authors discussed must be read through and through many times, and the work done must be thorough. . . . The public exercises of the seminary are to occupy four hours weekly. They are to consist, (1) in the reading of original papers, and (2) in oral discussion. The papers presented are to discuss (*a*) topics taken from any department of classical study, and (*b*) difficult passages from classical authors. The oral discussion will comprise (*a*) careful and searching criticism of the papers presented; this discussion is to be opened by two members called *Opponenten*, to whom the paper must have been submitted eight days previously, and to be closed by the director, who also must have seen the paper at least two days before the meeting. Besides the work above outlined, the members are (*b*) to take turns in the oral translation of Greek and Latin authors (the Greek prose writers being turned into Latin prose). They must be ready to defend their translations; to indicate all sorts of peculiarities in the passages rendered; to suggest emendations of corrupt places in the text; and, by comment and illustration, to make clear whatever may remain obscure to their auditors. . . . The language to be used throughout, both in the written theses and in the oral discussion, is the Latin."

There is one brilliant example of a German seminary which it would be inexcusable in me to leave unnoticed. It is the Bonn Philological Seminary as it was between 1839 and 1865, under the directorship of Friedrich Ritschl, a striking illustration of the wonderful power of a useful institution when inspired by a man of genius.¹² Ritschl's fame as a scholar, and his skill as a director, attracted, for many years, ambitious young men from all parts of Germany, and from other lands. His seminary became a busy workshop, the centre of university life, and thus the source of influences that were felt all over the civilized world. It became the model seminary, and Ritschl was frequently asked for advice by scholars in various lands who wished to establish similar institutions.

In a letter¹³ to a Greek professor in Finland, who had asked him

for suggestions, Ritschl gives his views as to the value, object, and essential features of an ideal seminary. His words have an importance quite beyond the occasion which called them forth. Ritschl asserts that if classical studies flourish in Germany more than in other lands, the cause is to be found nowhere else than in the philological seminaries of her universities. As an incidental proof, he calls attention to the total revolution that had taken place in Austrian higher education within a generation. It was only within that period that seminaries and the methods of seminary training had been introduced into the Austrian universities, and the results were a thoroughly competent corps of gymnasial teachers, and a reformed higher education, in which Austria, at the time of his writing, was not behind her sister states. The greatest need for the higher education is competent gymnasial teachers. For the training of these more is needed at the university than the mere hearing of lectures. Lectures present only the theory and items of knowledge: they work upon the student's mind from without. The future teacher needs, more than anything else, skill and method in his studies, and these can be gained only by the exercise of his powers and by putting to practical use knowledge already obtained. The seminary does not now have directly in view the practical training of young men as future teachers; skill in teaching is won only by the actual practice of the profession. The seminary endeavors to bring about independent personal activity; it disciplines men to facility and skill in research. It does this by requiring that studies shall proceed from a critical and scientific basis according to exact methods. The intellectual operations thus performed by the student himself and not merely heard about, as when he listens to lectures, become part of his flesh and blood, his own inalienable property. "For my part," continues Ritschl, "I will not withhold a twofold confession. The best that there is in me as regards philology I owe to seminary exercises under my teachers Gottfried Hermann in Leipsic, and Karl Reisig in Halle; and the best that I have done as a university professor, at all events the most tangible, the most permanent good that I have wrought, has been in the work of the seminaries over which for thirty years I have had the good fortune to preside. . . . There is one condition that is absolutely essential to a successful seminary: all its members must be thoroughly grounded (*sattelfest*) in the grammar of the classical languages. The seminary is not the continuation of the gymnasium. . . . In about four years after the establishment of a well-managed seminary there will go forth a band of skilful scholars, competent to teach; six

years later the number of teachers thus trained will be large enough to exert a marked influence upon the education of your country, and in fifteen years your schools will be in the hands of an entirely new generation of teachers." In a subsequent paper,¹⁴ Ritschl expresses the belief that young men ought to enter the seminary early enough to allow them to spend at least two years in its work before leaving the university. The younger the members of the seminary the deeper and more permanent is the influence exerted upon them.

Ritschl devoted himself tirelessly to this work, giving up his time, his strength, his books, for the sake of his disciples ; never, however, doing it in such a way as to relieve them from the necessity of doing most of the work themselves. He never, for example, gave a man a subject to work upon, either in the seminary or for a doctor's dissertation, though often he suggested themes from which a selection might be made. In his conduct of the seminary, as in his public lectures, there was a kingly power about him. Latin was the only language to be heard in the seminary, except when at times in order indirectly to rebuke stupidity or slovenly work he would drop into drastic German, as if the Latin were unintelligible to the delinquent. The work of the seminary was often planned with great system. For a given time it would gather upon a connected group of subjects, and the combined results of these special studies were often an important contribution to science and to literary history. Thus it was now that certain poets were studied ; now historians and orators, philosophers, grammarians ; subjects approached from various points of view, as the biographical, the critical, the linguistic, the literary. Many of the most brilliant enterprises of recent classical scholarship were conceived in this seminary, though years may often have elapsed before maturity. This institution filled the higher schools and gymnasia of Germany, and to a certain extent the philological chairs in the universities with skilful teachers, with men who by actual practice had learned to investigate, to think for themselves, and to treat their themes with masterly hand.

Ritschl profoundly impressed himself, his ideals and his convictions upon all who came in contact with him. His conception of the character and object of philological study has thus become, through the wide-spread influence of his pupils, the conception of all educated Germany. Under Ritschl's influence young men came to feel a vital interest in their work, to entertain profound convictions as to the dignity and high value of scholarship. Classical literature and the monumental remains of ancient art were to them no longer so many scattered, disconnected fragments, interesting as mere curiosi-

ties, for the entertainment of the pedant or for the amusement of the lover of bric-a-brac. What has survived to us from the past is rather the ruin of a wonderful civilization, and classical studies have their noblest activity in the reconstruction of this lost world.¹⁵ It is work of the highest order; it calls into play the profoundest energies of the mind of man. There is nothing in the past, however obscure, but that by right investigation it may be found out.¹⁶ Every student should have his own especial part in the work, coming to it with his best skill, and performing it, because of his concentration and singleness of aim, better than it could be done by any one else in the world.¹⁷

I have thus attempted to outline the general features of German university seminaries and to call attention to the influence they exert, by presenting concrete cases. But they are not the only German institutions that have as an end in view the training of the mind and the advancement of scientific knowledge by the encouragement of original research. As their membership is restricted to a very small number of picked men, there are many students who cannot gain admission. For these, however, as for all, ample provision is made. There are in each university many private societies for research in special lines. These associations, societies, clubs, as they are indifferently styled, are generally conducted by men who stand at the head of their departments as recognized authorities, and they bring into intimate relations professors and students. As examples of such private societies I will mention a few that were in active operation last winter at Leipsic: societies for dogmatic theology, church history, New Testament exegesis; canon law, civil law; the Arabic, Hebrew, Sanskrit, Scandinavian, Romance, and English languages, respectively; Greek and Latin grammar, Greek literature, Greek antiquities, Roman antiquities, classical philology, comparative philology, palæography, ancient history, logic, history of philosophy, and so on.

It would seem that these private societies with the seminaries would offer all the opportunities for training in original research that could be used. There are, however, still other organizations of similar aim and influence: philological and scientific unions composed of, officered, and entirely managed by students. These bodies are often large, some of them are well known: they always make a most important element in the intellectual life of the university. Ritschl's estimate of their value is expressed in the words, *Philologische Studentenvereine, allerherrlichstes Incitament*.¹⁸

The German university system finds in the seminaries, professors'

societies, and students' unions its most important and efficient aid. The German university aims to educate, by combining in the work of one corporate body both instruction and research; to educate, by increasing as well as by transmitting inherited knowledge.¹⁹ The deficiencies of the lecture system of instruction — which we have seen the Germans fully recognize — are made more than good by the work of the seminaries. All foreigners who visit and study the German universities find nothing in them that is more admirable and useful; nothing, as M. Dreyfus-Brisac, a most competent French observer, remarks,²⁰ more worthy of imitation.

We have already noted something of the influence these institutions have exerted. Perhaps the most tangible result of it is the multitude of monographs (*Programme*) that are annually published in Germany. These monographs touch every department of science and learning and present the most advanced results of knowledge therein. They are ordinarily written, by teachers in the gymnasia, — by men whose skill in exact and progressive research was cultivated, whose special interest was aroused, and whose special studies were begun, in the seminary or private society at the university. The influence exerted by these institutions upon their members has been most beneficial. Men of great gifts, who would be great without any special training, are, by the discipline of the seminary, protected from making the mistakes of errant genius. Men of mediocre powers are trained in such a way that they make the most of themselves that is possible.

No one will deny that these organizations have their bad side. There is great danger that immature students will run into narrowing specialties before a broad and general mental culture and discipline have been attained. Sometimes a precocious ambition to make brilliant discoveries will lead the young investigator to part with good judgment. But it must be strenuously urged, both these classes of faults have their cure in the proper working of the seminary. Under a wise director, immature students will not be admitted to membership, and a familiarity with the broad principles and general relations that determine the existence of special subjects will be insisted upon even more strongly than minute special knowledge. And for faulty logic or mistakes in judgment there can be no more vigilant or effective critics than one's own fellow-seminarists.

I have dwelt thus at length upon this feature of German university life, chiefly, of course, because of the relation it sustains to our present discussion, but also, incidentally, I will confess, because we are apt, in ignorance of this factor, to undervalue the whole German university system.

The thought that will now rise uppermost in your minds is doubtless the query as to the bearing of these foreign institutions upon our American system of higher instruction. The question will be asked in silence, Is it worth while to bring into our higher education these foreign methods of training? Is there not something in the very structure and object of American college education that would make such methods out of place with us? It certainly would be an ill-judged proceeding to introduce into a college course, where mental discipline and the acquisition of general literary and scientific culture are the ends in view, methods of instruction which consist, essentially, in special studies. We are ready frankly to admit, it will be said, that in our post-graduate courses of study, in the professional departments of our universities, seminaries on the German plan would be desirable and valuable. It is these post-graduate institutions that are the counterpart of the German university; the American college is not. The college is rather the counterpart of the German gymnasium; and, at the gymnasia, seminaries do not exist, nor is original work performed. Let us, then, remain content with the organic completeness of our national system; a wonderful work has already been done; let us leave experimenting alone.

These objections are plausible, in part they are just, and they demand more than casual notice.

Our American college is a peculiar complex. It can be exactly likened to nothing else in any foreign land, — neither to the German university nor to the gymnasium. If we take the subjects taught in an American college, we shall find that the attempt is made to cover a much more extensive ground (though less intensively) than is done in the German gymnasium. The studies prescribed for the degree of Bachelor of Arts in the average American college are substantially equal in range to those pursued for the last two years at the gymnasium (except that, in the latter, classical studies receive relatively more attention), together with a portion of the leading non-technical subjects treated in the philosophical faculty of the German university, — language, literature, philosophy, and science. And, as Schleiermacher has said,²¹ the essential character of the German university (which has liberal education as the higher, and professional education as the subordinate end in view) is to be found in the philosophical faculty. Thus, as regards the subject-matter of his studies, the American college graduate is at graduation supposed to be as far advanced in intellectual growth and attainments as a German student, who having finished his gymnasial studies, has spent two years in liberal studies at the university; and an American

student, at the end of his Sophomore year, stands at about the same point in academic progress as the *Abiturient* or German gymnasial graduate. In the matter of age a further coincidence should be noted. The average Junior in our colleges is nineteen or twenty years old, which is if anything a trifle above the age of the German youth at the beginning of his university life.

If, on the other hand, we consider the methods of instruction used at home and in Germany, we shall find that, as things have long been with us, there is an almost exact resemblance between the college and the gymnasium, and almost none between the college and the university. The object of the gymnasium is in the main, as expressed by Von Sybel,²² a most trustworthy authority, to train the intellect and to introduce the student to the study of authors of antiquity and of his own mother tongue. In all this work the learner places himself implicitly under the guidance of others; he exerts himself only to become master of what is set before him,—to perform assigned tasks, to acquire the knowledge and the information that are prescribed as most essential to a liberal culture. He is occupied solely, to use Lord Bacon's metaphor, with the work of taking his stand upon the antiquity of inherited knowledge, and he thinks but little of the progression that he ought duly to make. He is at school.

In the German university, however, a new method is followed. The young man now stands upon his own feet. The principle of authority which controlled his education up to this time is now abandoned. He is independent and alone; not a pupil of, but a fellow-worker with, his instructors. It is the very essence of the German university idea, that it sets before the student as the goal to be reached, perfect independence in his intellectual activity.²³ All the university methods and regulations have this end in view; the studies of the student are not prescribed, his time is not mapped out for him, he is not obliged to be regular in his attendance upon the university exercises. His period of pupilage is over; he has left school. He is a man whose further growth is through independent action.

We set before our American students the subject-matter in part of university instruction, but do not, as a rule, make use of university methods. We keep our young men at school until they graduate; and that they often go from college still children in intellectual power, while men in general information and in years, is our fault. And many times, if they do possess a crude power with sterling character, it is because, as Emerson says, their schoolmates have educated them; the college curriculum has not done it. When American college graduates and German students are brought into contrast

in an historical or philological seminary, the *kindlich* (as an eminent Berlin professor has expressed it), the puerile, character of the work of the Americans is always remarked upon. These young men often have a vast amount of information, which is not knowledge; they do not know what it means, nor how to use it; it has no organic unity or life. Young Americans, however, who have had laboratory training at home are always, in the seminaries for physical and natural science, fully on a par with the Germans in ability and skill.

The American college, as we have now seen, is a mixture of gymnasium and university. It already possesses many of the characteristic features of the gymnasium, — its quota of prescribed studies, its fixed and minute regulations as to conduct and attendance, its methods of instruction and study. But in the course of his college life our American student passes from the gymnasial stage and subjects of study into the broader field. His powers have been greatly matured and disciplined; in years he is a man; he has already obtained the great essentials of information. Let him now, in this broader field, be left more to himself; let him have the opportunity to subject himself to something of the same independent self-training that is prosecuted by his fellow in Germany.

A few of our colleges have already made a step in this direction. In the provision for elective courses of study, they have aimed to imitate, in a certain degree, the broad scope and freedom of choice of the German university; and such studies they have very wisely always placed toward the latter part of the college course, — in Junior and Senior years. And in a few of our institutions, as will be seen later, the seminary has been actually introduced.

There would seem to be, then, neither in the principles nor in the practice of our American colleges an insurmountable obstacle in the way of introducing what is so characteristic of the German university system, namely, education by means of original research.

The discussion, however, must be brought nearer home and its subject should be presented without regard to foreign models. That it may have practical value, suggestions should be offered as to methods of original research by college students, — helps, incentives, conditions, and limitations. Let us bring out explicitly what thus far has been only implicit, even if we are obliged to repeat.

There are, it should be remembered, three prominent objects equally in view in every well-considered system of higher education; namely, the training of the mind to self-knowledge and self-mastery, the acquisition of the mass of information which, duly assimilated, makes up culture, and the power of independent and skilled intel-

lectual activity in new fields of knowledge. Neither object can be lost sight of, for the sake of the others, without greatest detriment to the rounded character of the liberal education. In our American colleges the student attains the second of these objects and to a certain extent the first. The very effort to learn what is taught, to receive what is given, gives one increasing facility in apprehension and understanding. The latter of these three objects, however, — the power of independent and progressive intellectual activity in unfamiliar fields of knowledge, — is very inadequately attained in our colleges. This power comes only through actual practice and experiment, and best under the guidance of skilful masters in the art ; and this actual practice and experiment, this careful investigation in new fields, this independent personal research, are what we do not have in our colleges. It is for this that I am speaking to-day. It is true that there is much work on the part of college students which might be called original. The essays and orations that are written in sufficient abundance frequently presuppose and require independent research and independent criticism. Unfortunately, however, too often the literary work of the college student is a patchwork made up of the thoughts of other men ; sometimes unconsciously put together, upon subjects where, in many cases, the student is himself fully competent, if he will but make the endeavor, to arrive at an independent opinion. The thoughts of other men, leading spirits, are appropriated but not assimilated. Had the student gone through something of the same processes in the formation of his opinion as the men had done whom he echoes, his opinion would have been his own. The fault is partly in the student, but most in the college. Frequently the subjects that are assigned for treatment are so broad and so philosophical that it is impossible for a college boy, with his ignorance and inexperience, to form upon them a thoroughly digested and well-reasoned opinion : he is compelled, if he say anything, to echo the voices of others. Again, we often make more of the rhetorical elegance and finish of the composition than of the quality of the thinking it embodies. These things ought not to be. We ought to give our young men tasks that they can perform unaided. The themes assigned should not be so extensive in scope that the materials for their discussion cannot be duly gathered by the young men themselves. A limited subject, thoroughly mastered, is far more useful than vague yearnings after the infinite.

Original research should be postponed to a late period in the college course ; it should be begun hardly before Junior and Senior years. The broad foundations of a liberal education should have been

securely laid before special work may be entered upon. To act otherwise would be to disregard the balance and proportion that characterize all true education. Nor in any special subject should original work be begun before the broad features and the general relations of that subject shall have been thoroughly mastered.

A student must have his bearings in a subject before he can expect, with success, to develop any small portion of it. A panoramic view of the whole field, not only of liberal culture, but also of that department of study in which he proposes to do special work, must be clearly before his vision before he can expect with profit to enter upon the land and possess even a small tract of it. General studies give this panoramic view, while special studies bring one face to face, hand to hand, with knowledge. The student who has made only general studies is as one whose knowledge of a foreign land is based alone upon the reading of books of travel, while the special student who has done original work is as one that has actually visited and seen the countries about which he professes knowledge.²⁴

In particular, the student should not undertake extended research in Greek or Latin philology, nor in fact in any of the languages, before he is in one sense master of the languages, — before he not only is able to read them fluently, but also has done a large amount of such reading. *Lesen, viel lesen, sehr viel lesen, möglichst viel lesen*, is Ritschl's advice to the young philologue. In other words, he must have become at home in these languages before he can be allowed to do what is, properly speaking, original work in them. In history or biography work should not be begun upon a special event or upon a special character until mastery has been gained of the general features of that event, the circumstances in the midst of which that person was placed.

It will be found, further, that special work entered upon after such preparation not only will intensify one's knowledge of the particular object investigated, but also will incidentally extend one's knowledge, and, in a most surprising manner, throw light upon hitherto dark portions of the wider field. In fact, in the broad relations of the studies of special topics, and in the widening of general knowledge by means of them, is to be found much of their educational value.

To illustrate this truth, as well as to give a distinct example of what might be spoken of as original research in a college course of study, let us take the subject of history, and, in particular, a topic from Greek history.

Our student, either in the preparatory school or in the prescribed course of college study, has become familiar with the outlines of the

history of Greece. He is thus prepared, in a measure, to undertake the investigation of a special topic ; he chooses for his subject one of the great battles that mark epochs in history, — that of Salamis, for example. In the first place, he will carefully gather from all possible quarters all the original records of the battle now accessible. Herodotus' account and the brilliant narrative of Æschylus (in the "Persians") will be his fundamental materials. Other ancient writers will yield him information as to many matters of interest and importance, as to the chief combatants, numbers of contestants, exact date of the battle, etc., — writers like Thucydides, Ctesias, the orator Lycurgus, the poet Simonides, Diodorus Siculus, Plutarch ; their contributions to the history will be in scattered notices, to be found in their writings without great difficulty. The student will also familiarize himself with the external circumstances of the battle, particularly the topography of the scene of conflict. On the basis of these materials alone, duly sifted and mastered in detail, he will then himself write a new and original history of the battle. He will ignore, for the time, all that has been written upon the subject by modern historians. He will often make mistakes ; but these will be corrected by experience and a wider reading. In the progress of his work much light will break in upon him ; the connection between the various historical writers of Greece, their merits and their defects, will become apparent to him.

In writing history thus he has become a creator. His critical faculties also are called into play in his comparison and judgment of his sources. The result, then, of the treatment of such a simple theme as this will be not only vivid, exact, and thoroughly authentic information as to the battle of Salamis, but also a greater familiarity with many important writers of antiquity, a training of his critical faculty, and a step toward the important achievement of clear headed thinking for one's self. He is become an authority ; he is no longer an echo.

If he should prefer a biographical theme, there are many of the famed worthies of antiquity about whose persons so few and meagre accounts are left in literature as to make very easy an original study of their personal history, — men like that first democratic statesman, Clisthenes of Athens, like Aristides, Epaminondas, and others.

Subjects chosen from ancient history have a great advantage over those taken from modern history, in the fact that the data to be used in the former case are comparatively limited in extent, the authorities are few in number, and all the possible material is easily accessible to the student. In modern history the converse of the above is true

in almost every particular ; the factors that enter into every problem are very numerous ; these again are outnumbered by the authorities, and, finally, the original records, the consultation of which is indispensable to a thorough treatment, are beyond the reach of all except the favored few. As an eminent historian once said in my hearing, only a man of genius, leisure, and fortune can study modern history as it should be done.

The student may desire to extend and deepen his knowledge of certain facts in connection with one of the languages to the study of which he is required to devote so much time. He may wish, for example, to know more about some of the features that distinguish Greek from the more cumbrous modern languages, and that have won for it, in the judgment of the competent, the pre-eminence among known languages for delicacy, beauty, vividness, and strength, both as the expression and as the instrument of thought. He can familiarize himself, for example, with the characteristic uses of moods and tenses, of particles, of prepositions, in no better way than by making careful and exhaustive lists of all uses in some greater or less portion of the authors he may be reading. These lists, if extensive enough, with their almost spontaneously suggested classifications, would yield him the knowledge he is in search of far more satisfactorily than most patient grubbing, without such work, in excellent treatises on moods and tenses, particles, and the like in any language. The lists would also serve to an extent as dictionaries or indexes to the vocabulary and usage of particular authors, and in many cases would be cordially welcomed by professional scholars as positive additions to our knowledge of Greek and Latin. One of the most popular of our small Greek dictionaries was made complete for that part of the Iliad which is read in our schools, by work of this kind done by a Harvard Freshman.

The field of research of most interest to the majority of students will probably be that of the English language and literature. As an illustration not of what might be, but of what actually is done in this and other lines, I shall take the liberty of reading from a letter on this subject written me by Professor F. A. March of Lafayette College : —

“ . . . A great deal of writing is done here by the undergraduates, which is intended to be the record of the writer's investigation and of his views to which the investigations have led. We distinguish this work carefully from rhetorical essays and orations, which we have in sufficient numbers, but which are prepared for different professors from those who receive the first kind of work, and are cor-

rected and graded differently. We insist much on this distinction; the papers are to have no oratorical flourish, but are to state facts or arguments in the simplest language. . . . We give out subjects involving statistical research, *e. g.*, the examination of the style of an author in respect to the proportion of Anglo-Saxon and Latin words which he uses, in respect to the percentage of adjectives and substantives, of adjective clauses and substantive clauses, and the like matters of etymology and syntax. A collection of all the instrumental cases in a given book in Anglo-Saxon, with classification and discussion, or all the subjectives, is another kind of investigation necessarily original.

“Biographical essays are also given out and discussed in such a way as to emphasize going to the sources, *e. g.*, Shakespeare’s life at Stratford. In every statement that the writer and reader makes he is pursued by questions as to how he knows it, till we get to original documents, or want of them. So in an investigation of the spelling of Shakespeare’s name.

“In discussions of history a similar course is taken, *e. g.*, every class has a great time over the career of Demosthenes, each man taking sides for or against him on the trial while reading *De Corona*. And they have several field days of discussion on the different issues, in which it is understood that Grote and Mitford and the moderns go for nothing, the original sources and the sound sense of the class and its champions are all. So also in weekly papers, in connection with the study of psychology, subjects are given out for independent criticism or research.

“In English, we close our college studies by a term’s work on a single author (different each year), resulting in an extended written article in which topics of original research are included, minutes of facts and reasonings are handed in and openly discussed somewhat, on assigned topics, one day in each week, till three or four weeks before the end of the term; then all and more (*ad libitum*) is worked up into the grand article. We often have quite a little book made by some of the class; but I dislike length, and proclaim that quality not quantity counts. A statistical examination of the language and style, with an attempt to explain the causes of the peculiarities found in an author in those respects from grounds in his character, times, subjects, and so forth, is always part of the work. I sometimes give out a passage of Anglo-Saxon to be the text of a book (in miniature), the students to prepare notes critical and explanatory, and make out an etymological vocabulary, historical introduction, and what-not, as if they were to print it as a book. As there are no good Anglo-

Saxon etymological dictionaries of any account, and no annotated editions of the authors, this is very good original work.

"It strikes me that perhaps the main thing peculiar about our work, as compared with the regular college staple, is the giving out particular, rather minute, topics, and requiring them to be treated in a definite way, instead of leaving the writers to indulge in vague generalities. A certain amount of this sort of work seems to me very desirable and easily attained. It strikes me it is better attained by an understanding that each professor, when hearing certain studies, will direct such work as part of the regular study, and auxiliary to the mastery of the regular text-book, than it would be in an independent programme of original researches arranged by the Faculty."

Further detailed description of original work that might be or is done by college students in literary, philological, and historical fields is unnecessary, certainly after the reading of this suggestive letter.²⁵ Work of this original character, consisting in and based upon original research, in the departments of mathematical, physical, chemical, and natural science, I shall not venture to suggest. Those interested in this most important phase of the subject will find it well treated by Professor H. E. Roscoe, in his "Original Research as a Means of Education" (Owens College Essays and Addresses. London: Macmillan, 1874). Professor Roscoe restricts his discussion almost exclusively to this second aspect of the subject, much as I have restricted mine to the former aspect.

How, it will next be asked, might original research be provided for by our colleges in their undergraduate courses of study and instruction?

1. It might, as Professor March suggests, be conducted entirely as an adjunct to the regular work of the text-book and recitation-room. In fact some parallel work carried on in this way is often found absolutely necessary for the complete mastery of certain subjects of study. It is done much in Germany at the gymnasia. I was present a few years ago at such an exercise in a Latin class at the Eton of Germany, the famous Schulpforta gymnasium. An event in the life of Cicero had been assigned for investigation. The members of the class hunted up all the passages in the various writings of Cicero touching upon the event, combined them, and drew their own inferences as to Cicero's conduct on the occasion and his views concerning it. This arrangement would, however, if exclusively followed, give all original research an informal character, and would seem to place it in constant subordination to the recitations. The relation of professor and student as teacher and pupil would not be lost sight

of and merged into that of fellow-workmen. This latter relation is of great importance, when a student is to work independently. Still these are not fatal objections, and there might be circumstances where this method of procedure would be better than any other.

2. Seminaries, on the German plan, or societies corresponding to them, might be formed. Admission to the seminary should not be granted before at least the beginning of the Junior year. Membership should be entirely optional. The number of active members should be small. In case there are many candidates, choice should be made according to merit. Men who engage in this work might properly be allowed dispensation from a certain amount of other work. The efficiency of such an institution would depend largely upon circumstances, most of all upon the ability of the director.

In a few of our American universities there are now in existence such seminaries. They are usually designed for post-graduate students, but in most of them undergraduates also have the privilege of active membership. At Harvard, Professor F. D. Allen has what is practically a seminary in a course of study in classical philology, comprising "Practice in Text-Criticism and Interpretation of Greek and Latin Authors, Discussion of Theses on Philological Questions," where "the exercises are colloquial, and thrown as far as possible into the hands of the students themselves." Similar work is done at Yale under Professor Packard; at Johns Hopkins there are Greek, Latin, and mathematical seminaries. Professor C. K. Adams's historical seminary at Michigan University is well known; and there are in other colleges courses which virtually train in seminary methods.

The seminaries have the great value that springs from association in work. Interest and enthusiasm are contagious, and workmanship, constantly subjected to severe and vigilant criticism, becomes finished and mature. Better results, I believe, would be reached through these public organizations than alone by what might be called private original research.

3. Such private work, however, should not be neglected. It could be encouraged, in one way, by allowing men properly qualified to substitute, for a limited amount of the required rhetorical exercises, theses embodying the results of original research. This practice is, or has been, in vogue at Harvard, where candidates for final honors are allowed to present theses on the subject in which the honors are sought, in place of a certain number of the forensics which ordinarily are required of all.

4. The granting of honors in special subjects might be conditioned in part on the presentation of satisfactory theses. The post-

graduate degree of Ph. D. is in most of our universities conferred only on those who have done work of this character.

There is something like this in existence in Cambridge, England. Mr. Oscar Browning writes me that no provision is there made for original research on the part of undergraduates, the only exception being "in colleges such as Trinity and King's, where dissertations are allowed to help towards the attainment of a fellowship. These dissertations are of the nature that might be called original work."

5. Special prizes, such as are now offered ordinarily for purely literary essays, would certainly incite some men to work of the kind we are speaking of.

6. The sixth and last recommendation I hold to be the most important of all. The college might give a special or an ampler *facultus docendi* in any particular class of subjects to students that had shown ability and skill in original research therein, either in the seminary or by private work.

Our secondary education, our high schools and academies, and, to a certain extent, the tutorships in our colleges, are in the hands of recent graduates. It is, of course, out of the question at present to expect that candidates for these positions shall have gone through that long course of severe professional training that has been educationally the making of Germany and of German scholarship. But it would be an unspeakable advantage could we insist upon something of it in all the young men who expect to receive from their colleges recommendations to posts as teachers. Let us, if only for the sake of this class of college graduates, for the good of our higher educational institutions, make some provision for collegiate discipline in original research. The seminary would be the best normal institute for such men: there they learn themselves, their subject and how to work; thus they know how and what to teach.

Once set on foot, work of this character would take care of and perpetuate itself. It could not fail to arouse the enthusiasm of students; and young men need no spur from without to keep them at that in which they are interested, whether it be base-ball or books.

The value of original research as a means of education lies chiefly in its reflex effect upon the person prosecuting it. It educates more through the scientific methods, through the actual intellectual experiences it compels the student in his self-exertion to pass through, than through the new matter it brings to light. As Karl Vogt has said, a right method in investigation is often of far more value than the investigation itself.²⁶ It schools the mind to skill in the acquisition of knowledge; and ability to learn is more consequence than accumu-

lated learning. In fact it is the very best way of training the mental faculties. Kant held, as Mr. Browning reminds us in his wise little book on "Educational Theories," that "the powers of the mind are best cultivated when we do things for ourselves." "All teaching," says Herbart, as also quoted by Mr. Browning,— "all teaching, to be effective, must set the mind of the learner in independent motion. . . . The learner must add something of his own to the ideas presented by his instructor. Instruction may be either analytic or synthetic. We must make use of both these means. . . . The mere imparting of information will not unite itself with individual consciousness, . . . unless it be combined with the practice of analysis."

The effect upon the student will be ethical as well as intellectual. Young men become thoroughly interested in what they are doing for and by themselves; they then work with serious, earnest, business-like directness. Proper self-reliance, in the spirit of which alone all original research must be carried on, develops at once one's moral and one's intellectual character. The awakened activities of the whole mind, exercised with constantly increasing skill, are themselves a discipline. The student's thought receives unity, clearness, and accuracy. Intellectual independence is attained. Those habits of mind are acquired that not only exert the most marked educational influence upon their possessors, but also are found to be of the greatest practical value in active life. The mind learns to balance, weigh, and discriminate, and, as we are told by more than one eminent teacher, it is precisely this power of balance, weighing, and discriminating that is of most value in life. In the prosecution of original research, the student is performing, in a speculative and philosophical way, what he is subsequently called upon practically to do. "The highest success in life comes to those who weigh probabilities best" ²⁷ "If," as Professor Roscoe observes, ²⁸ "if freedom of enquiry, independence of thought, disinterested and steadfast labor, habits of exact and truthful observation and of clear perception, are things to be desired as tending to the higher development of mankind, then original research ought to be encouraged as one of the most valuable means of education."

The items of knowledge obtained by these means become the personal, inalienable property of him who has thus won them, whether it be knowledge that has long formed part of the world's store and is gained anew, or whether it be absolutely new truth; it becomes wisdom, — and wisdom lingers.

"Was du ererbt von deinen Vätern hast,
Erwirb es, um es zu besitzen!" ²⁹

The existence in our educational institutions of such a spirit of independent and earnest activity in original research would have its marked effect. Colleges of this character would cease to be mere schools, — sometimes they would become outposts on the ever-advancing line of human knowledge; teacher and pupil, united in a common interest and enthusiasm, would grow in zeal and in the skill and productiveness of their work. What Professor Seeley, of Cambridge, England, says of the presence of this spirit among the teachers of a university, is equally true of its presence in that larger body of students, made up of teachers and pupils taken together: "Where the spirit of original inquiry is most active among the teachers, there the teaching is best; and, on the other hand, where this spirit is languid or dormant, the teaching, however assiduous and conscientious, is degraded in character; and such a university tends to become a mere school." ³⁰

It is important for all the great interests involved that the colleges and universities of a country should ever be the burning centres of its intellectual activity. This they will cease to be, this they cannot become, unless at them are practised and taught the most advanced and perfect methods of research and inquiry which are known to the experience of mankind, in all the great departments of science and learning. This vital truth has been reiterated to the English universities,³¹ and only a few days ago was brought home to the Harvard mind by Mr. Alexander Agassiz, in his remarks to the alumni on scientific education.

There is a further and a still higher obligation of which I have not spoken; an obligation laid upon us by our very opportunities, the obligation resting upon every educated man to push forward, for the sake of others, as well as for his own, that narrow line which separates the known from the unknown. It rests upon the man of intellectual gifts with almost the same binding power as upon the man of moral force rests the obligation to make his fellow-men better and purer. This obligation cannot be discharged at all unless we avail ourselves of all the aids accessible, acquire all the skill possible for the great work, and provide for others that are to come after us the same advantages. For this high and noble calling is needed intellectual independence, the full possession of what is known and the power to increase it, the ability to act securely and effectively alone, to advance unaided and without risk of fatal failure into the darkness that is still to be illumined. And when can these best gifts be better won than in the quiet hours and scenes of college life, un-stirred and unmarred as they are by the cares and preoccupations of

business or of profession, when hope is fresh and energy unabated, when the high vision of ideal aims is still bright and clear before the young and ambitious soul?

NOTES.

For assistance received in gathering the materials and documents for this address, my thanks are due, above all, to Professor Paulsen of the University at Berlin, to my sister Mrs. Lucy M. Mitchell in Heidelberg, and to the Harvard College Library; also to Mr. Oscar Browning of King's College, Cambridge, to Professor F. A. March of Lafayette College, to Professor T. D. Seymour and to Mr. George Bendelari, both of Yale College.

¹ J. S. Mill, Inaugural Address, Feb. 1, 1867 ("Dissertations and Discussions," Vol. IV. p. 333 ff.).

² "Möge das Studium der griechischen und römischen Literatur immerfort die Basis der höhern Bildung bleiben." Goethe, "Sprüche in Prosa," Ethisches, Abth. VI. (No. 510 in von Loeper's edition).

³ Bacon, "The Advancement of Learning," Book I. (v. 1. in Wright's edition).

⁴ The organization and history of the *seminarium philologicum* at Göttingen is fully described in R. Vormbaum, "Die Evangelischen Schulordnungen des achtzehnten Jahrhunderts" (Gütersloh, 1864), whose extracts from the original documents are given.

⁵ Wolf's influence upon education in Germany is best defined by J. F. J. Arnoldt, "F. A. Wolf in seinem Verhältniss zum Schulwesen und Pädagogik" (Braunschweig, 1861). Wolf's draft of instructions for the director of a seminary is given in Arnoldt (Bd. I. p. 254), and the draft of his introductory address to the students on the opening of the seminary may be found in Freund, "Wie studirt man Philologie?" (Leipzig, 1872), p. 148.

⁶ M. Edmond Dreyfus-Brisac, in his admirable "L'université de Bonn et l'enseignement supérieur en Allemagne" (Paris, 1879), gives a most interesting chapter (pp. 134-160) to the seminaries in the university at Bonn.

⁷ In Weise, "Verordnungen und Gesetze für die höhern Schulen in Preussen" (II. Abth., pp. 10-56), are given the legislation and ordinances in effect in 1875 in relation to the seminaries in the Prussian universities. Prior enactments, together with an immense amount of information as to the higher education of Prussia, are given by L. von Rönne, "Das Unterrichtswesen des preussischen Staates," Bd. II. (Berlin, 1855). Both of these works are official publications.

⁸ Weise, p. 19.

⁹ The revised statutes (dated Oct. 12, 1876) are not in print. Compare Dreyfus-Brisac, p. 150.

¹⁰ The statutes of the Juristic Seminary (dated Aug. 15, 1875), and the revised statutes of the Mathematical Seminary (dated Jan. 4, 1879), are not given in Weise.

¹¹ Weise, p. 10.

¹² Compare Otto Ribbeck, "Friedrich Wilhelm Ritschl. Ein Beitrag zur Geschichte der Philologie" (Leipzig, I. Bd. 1879, II. Bd. 1881), in particular II. pp. 30-41, 279-288.

¹³ Reprinted in Ritschl, "Opuscula," Vol. V. pp. 33-38.

¹⁴ Ritschl, "Opuscula," V. pp. 38, 39.

¹⁵ Compare with Ritschl's "Opuscula," V. p. 29, Niebuhr's saying: "Das Alterthum ist einer unermesslichen Ruinenstadt zu vergleichen, über die nicht einmal ein Grundriss vorhanden ist, in der sich jeder selbst zurechtfinden und sie begreifen lernen muss, das

Ganze aus den Theilen, die Theile aus sorgfältiger Vergleichung und Studium und aus ihrem Verhältniss zum Ganzen."

¹⁶ A favorite motto of Ritschl's was, "Nil tam difficile est quin quærendo investigari possiet."

¹⁷ See Ribbeck, *passim*; also Ritschl, "Opuscula," V. pp. 19-32, "Zur Methode des philologischen Studiums."

¹⁸ Ritschl, "Opuscula," V. p. 28.

¹⁹ Von Sybel, "Die deutschen Universitäten" (Bonn, 1874). "Fragen wir näher was sie [foreign critics] an unserm Zustand rühmen, welcher Moment ihnen als der Grund der Trefflichkeit unserer Universitäten erscheint, so lautet ihre einstimmige Antwort dahin: die stete Verbindung und Verschmelzung von Forschung und Unterricht" (p. 11). "Unsere Universitäten sind deshalb gute Schulen, weil sie nicht bloss Lehranstalten sondern auch Werkstätten der Wissenschaft sind" (p. 12). "Unsere Seminarien . . . in welcher also der Grundgedanke des deutschen Universitätswesens die ausdrücklichste Verkörperung gewinnt" (p. 28).

²⁰ Dreyfus-Brisac, p. 155.

²¹ Karl Schmidt, "Geschichte der Pädagogik" (Cöthen, 1867²), Bd. IV. p. 706, quotes Schleiermacher to the effect: "Dem Wesen nach sei die eigentliche Universität in der philosophischen Facultät erhalten, und die theologische, juristische und medicinische seien nur Specialschulen. . . . 'Zweck der Universität ist nicht das Lernen sondern das Erkennen.'"

²² Von Sybel, "Die Hauptsache aber, wie sich versteht, wird immer das Wissen und Können in den beiden alten Sprachen und in Folge dessen in der Muttersprache bleiben" (p. 52). "Wir erwarten . . . ein Doppeltes, Schulung des Geistes, . . . sodann die Einführung in die Lectüre der antiken Schriftsteller" (p. 54).

²³ Von Sybel, p. 38. "Das erste und letzte Wort unserer Lehrmethode ist Erziehung der Jugend zu voller Selbstständigkeit des Denkens."

²⁴ Ritschl, in Ribbeck, "F. W. R.," I. p. 334. Also, "Orientirtsein im Ganzen, und selbständig im Einzelnen, das ist die Summe aller methodologischen Rathschläge."

²⁵ Information as to original work done at Johns Hopkins by the students (mostly, however, post-graduate) is given in the *University Circulars* and is summarized in the *Annual Register*. Professor Gildersleeve's Greek seminary probably approaches the best German ideals more nearly than any other American institution of the kind, in the range, method, and quality of work done in and through it. The Latin seminary under Professor Warren well maintains the high standard set by its director and by the university. Professor Sylvester's mathematical seminary is without doubt unsurpassed in the world.

At Harvard there is much activity in this direction. Mr. George Bendelari, lately an instructor, writes: "In history certain of the courses are in original work. . . . The original work is of two kinds. *First*, The men select a subject for a thesis, and are then turned loose into the library among the original authorities, so that the results, although they may not be new, are certainly original so far as the work of the student is concerned. *Second*, The history of England, for example, is worked up without a text-book, the men using only the original authorities, under the guidance of the instructor. The best work, of course, is done by men who are candidates for honors; but there are plenty of others in the courses. In mathematics and physics work of this sort is likewise done; part of it consists in finding known results by new methods, part in obtaining absolutely new results. Some of the work in physics appears in the *Journal of Physics*, the results of original experiments by undergraduate students. In natural history the same is true; the results appear in the bulletins of the Agassiz Museum, and in those of the Boston Natural History Society. . . . I know that considerable work of this kind is done in classical philology. . . . In some of the German and French courses in modern languages theses are required. I am inclined to think, however, that they are mainly in the nature of literary criticisms, or of compilations. In Middle High German and Gothic original work was done, for instance, on the grammar of particular authors and works. In my old French course theses were required, and if they were mainly compilations, the fault lay chiefly with the scarcity of

material in the library. The effort was constantly made to obtain original individual work from the student. In all these cases, so far as the undergraduates are concerned, I doubt whether the results are ever very startling. As a means of preparing men for work after they leave college, however, and of teaching them to think for themselves, not to trust blindly to books, and not to be too much frightened, I consider it the very best work done in the college."

With regard to Yale College, Professor T. D. Seymour writes: "Professors Packard and Peck assign special investigations to their graduate students, but do not find the undergraduates so ready as they would desire for such work. . . . Occasionally a student is ready to undertake an independent investigation. He is always (supposing his fitness for the work) encouraged and aided. In other departments the optional work of the last two years is largely independent. In metaphysics, for example, each student looks up the system of some philosopher, which he is to study and criticise in all its relations. His thesis on this subject takes the place of an examination. . . . Mr. Packard tries the seminary work occasionally."

At Dartmouth, original research will hereafter be required of candidates for final honors in special subjects. Within three years past, in connection with one of the courses in Senior year, conducted by myself (in Linguistics), theses demanding original research have been written upon the following subjects: The Yankee Dialect, its peculiarities, in particular those of English origin; Word-Accent in English historically treated; Pronunciation of Classical Names historically and critically discussed; Comparison of the use of certain particles in the Greek of St. John and of St. Luke; the same of specified propositions; Comparison of the English of different versions of the New Testament; the English of Wyclif; of Sir John Mandeville; of John Gower; of Nicholas Udall; of Bacon's *Advancement of Learning*; of Ascham's *Scholemaster*; Characteristics of Addisonian English; topics in Chaucer's *Prosody*; Law Terms; *Bibliography of Comparative Politics*, etc.

²⁶ Quoted by Friedrich Müller, "Grundriss der Sprachwissenschaft" (Bd. I. p. vi). Ritschl's paradox is worth citing: "Besser methodisch irren als unmethodisch d. h. zufällig das Wahre finden." — "Opuscula," V. p. 27.

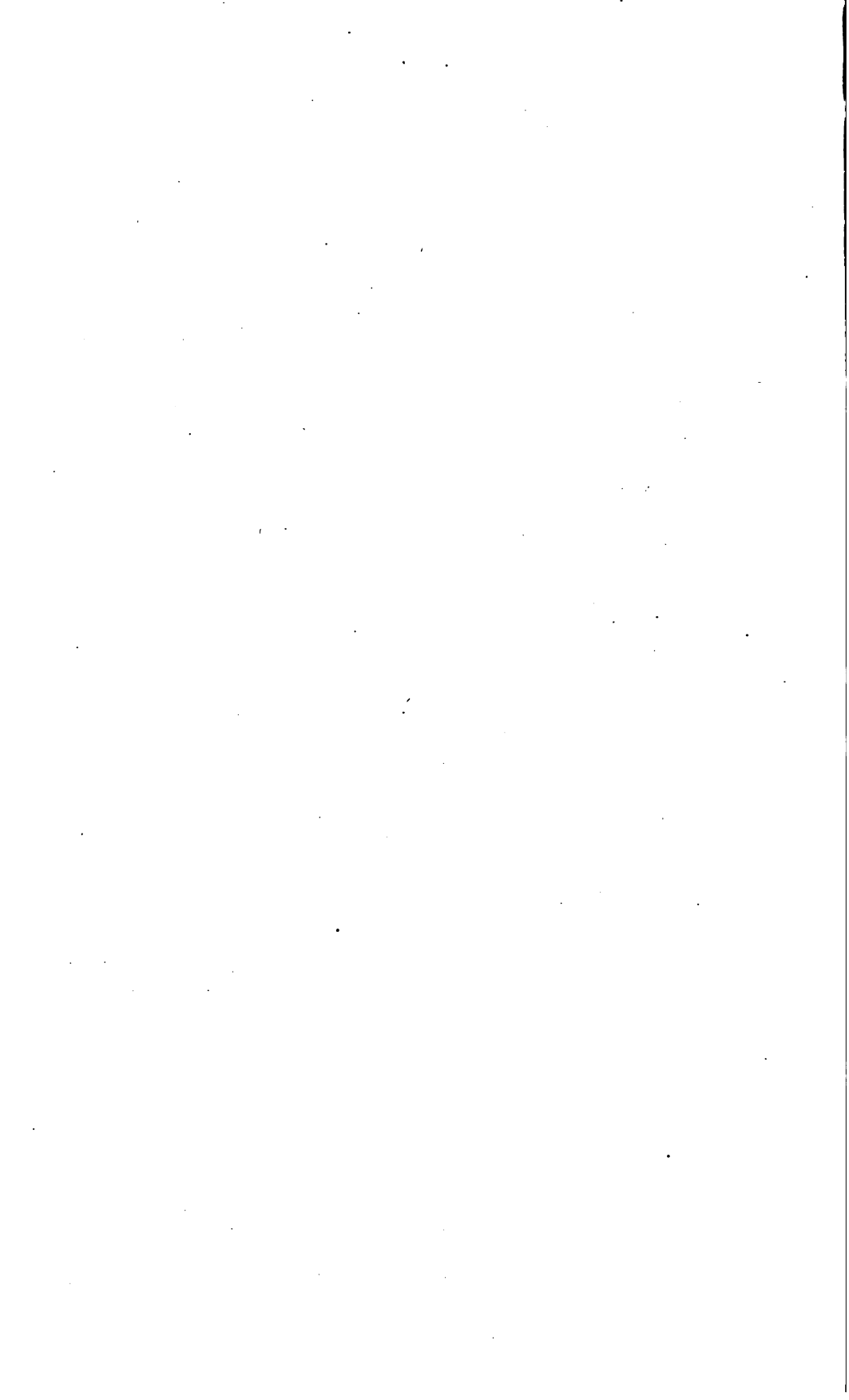
²⁷ C. K. Adams, "Manual of Historical Literature" (New York, 1882), p. 15.

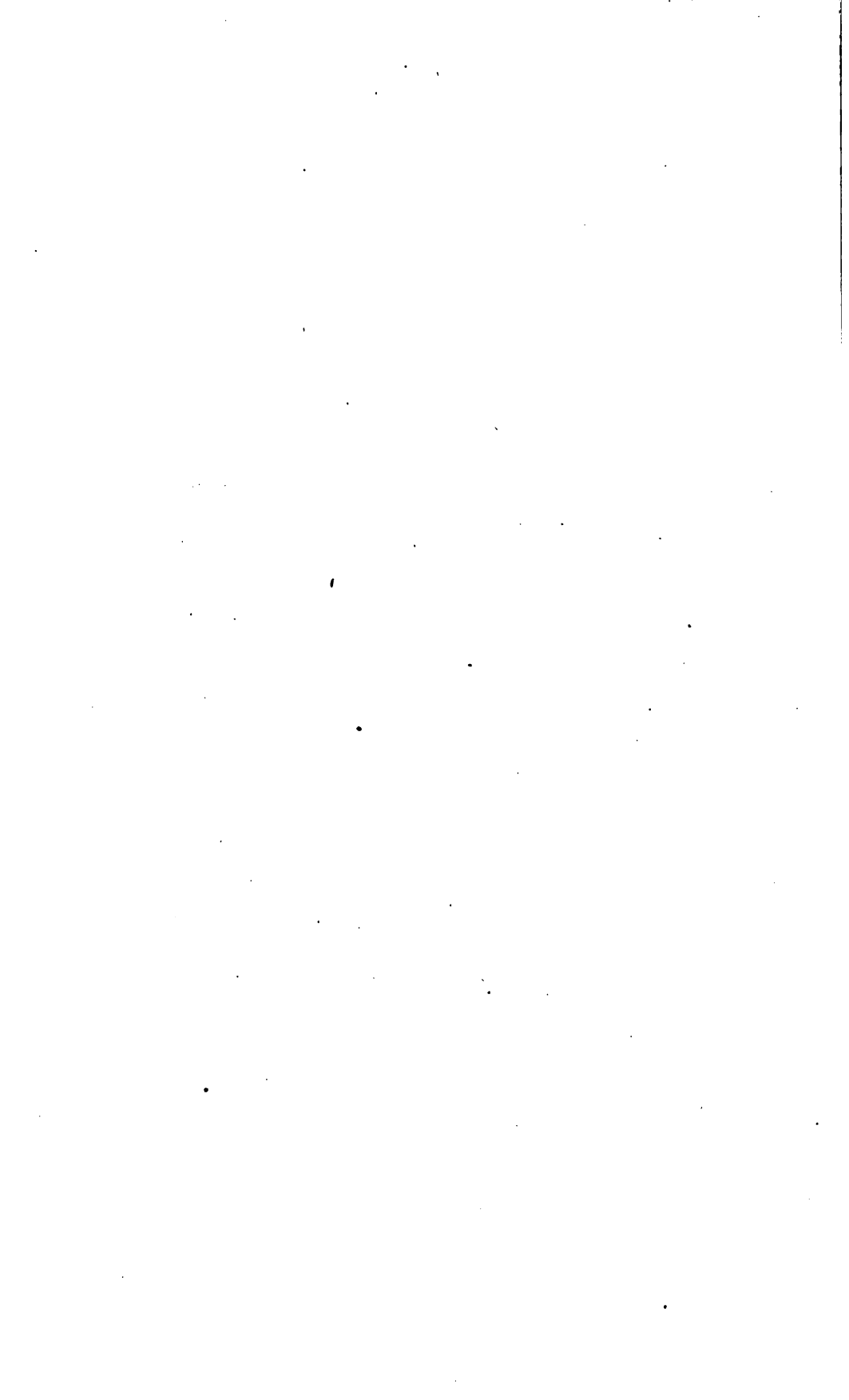
²⁸ "Essays and Addresses Owens College" (London, 1874), p. 57.

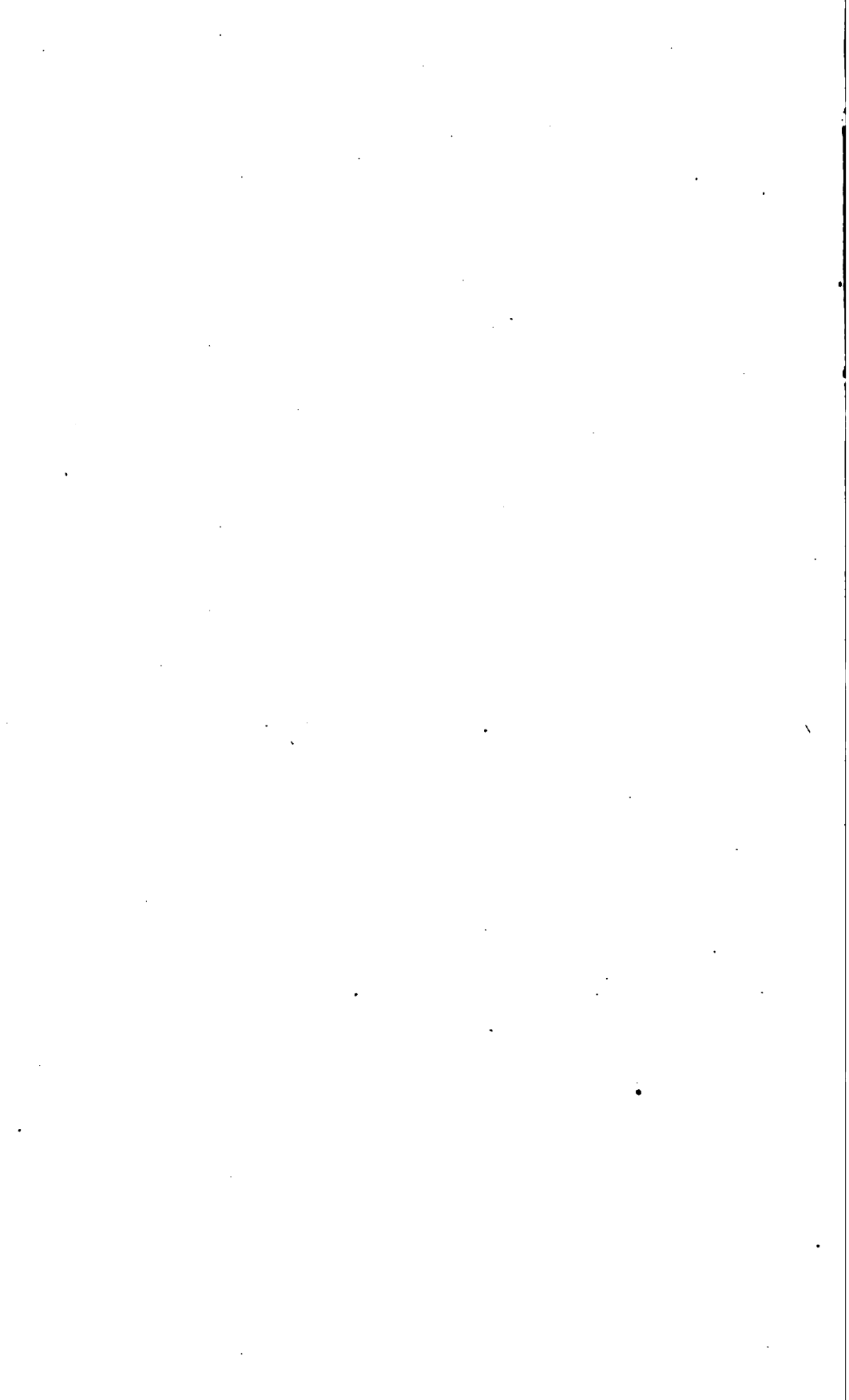
²⁹ Goethe, "Faust," I.

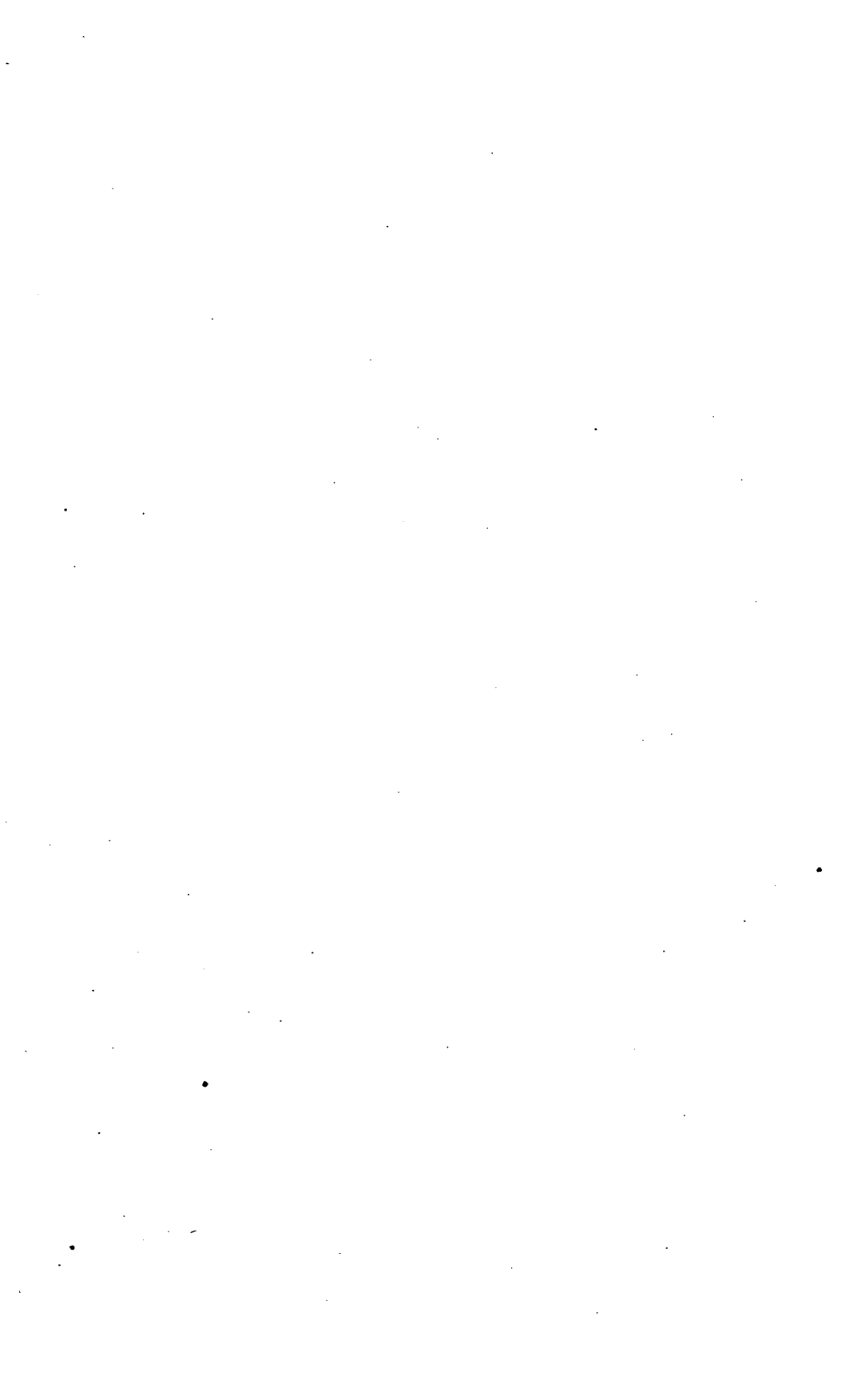
³⁰ "Essays on a Liberal Education," edited by the Rev. F. W. Farrar (London, 1868²). III. "Liberal Education in Universities," p. 152.

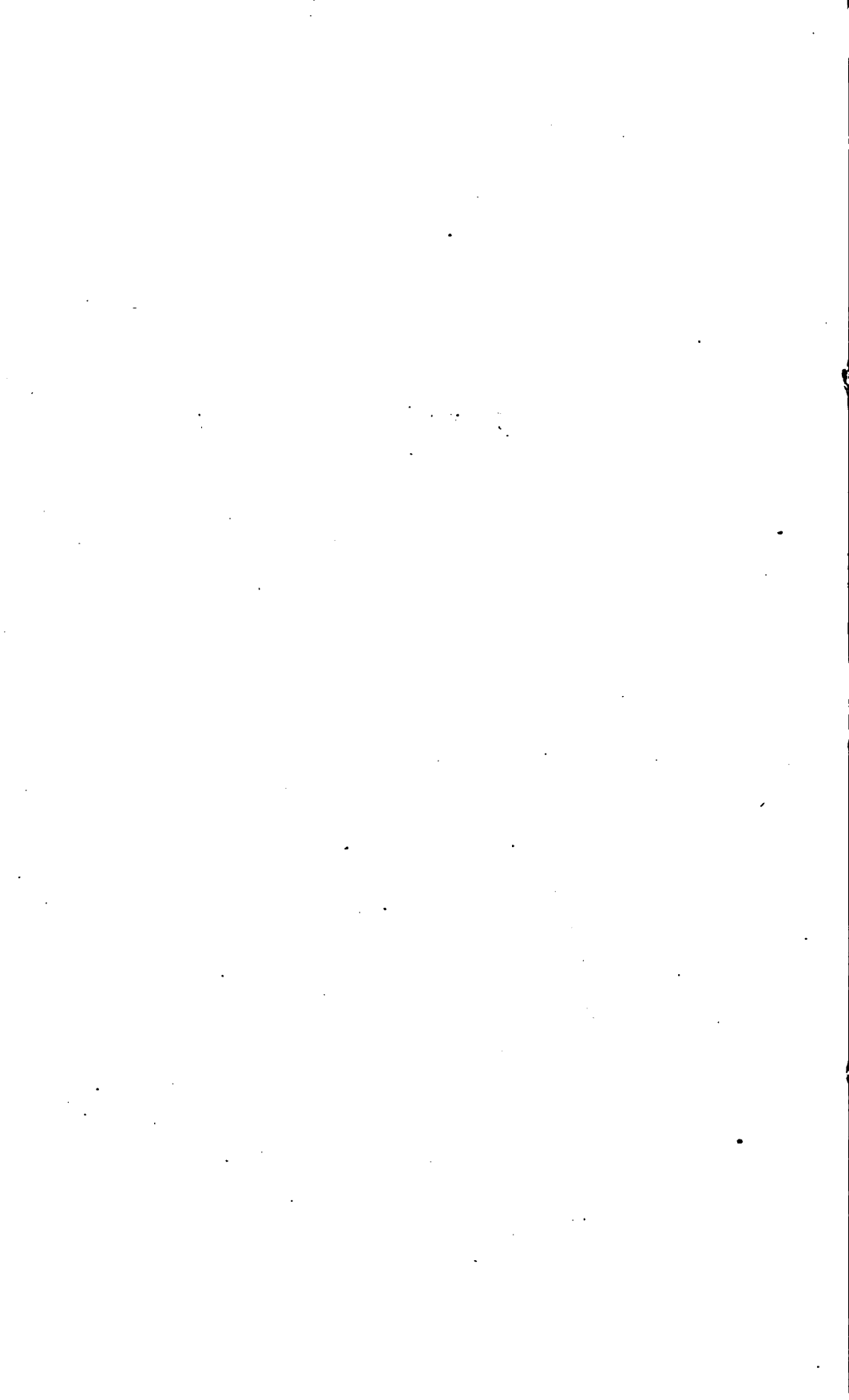
³¹ Compare Roscoe, p. 41 ff.











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